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09/749,125	12/26/2000	Kiyoyuki Chinzei	F0284 KWI	4997

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EXAMINER

BINDA, GREGORY JOHN

ART UNIT

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/749,125

Applicant(s)
Chinzei

Examiner
Greg Binda

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jan 13, 2003
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 10 is/are pending in the application.
- 4a) Of the above, claim(s) 7-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on Jan 13, 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 7 6) ☐ Other:

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1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restriction

2. Newly submitted claims 7-10 are directed to an invention that is distinct from the invention originally claimed because the inventions of the original claims and of the newly submitted claims 7-10 are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed in the original claims can be used in a materially different process of using that product because the product in the original claims can be used in a process (e.g. a torque transmitting process) that does not include defining coordinate values of one of the two spherical bearings.

3. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 7-10 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

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Drawings

4. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on Jan 13, 2003 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Specification

5. The substitute specification filed Jan 13, 2003 has not been entered because it does not conform to 37 CFR 1.121(b)(3)(iii) and 1.125(b)(2) because it lacks a marked-up version showing all the changes.

6. The substitute abstract filed Jan 13, 2003 fails to comply with 37 CFR 1.121(b)(1)(iii) because it lacks a marked-up version showing all the changes.

7. The disclosure is objected to because:

a. The specification appears to be a literal translation into English from a foreign document and is replete with grammatical and idiomatic errors. A substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

b. The specification fails to mention reference characters 2(1), 2(2), 3(1) and 3(2).

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c. Page 1, line 14 includes “assist robots are promising to be used in MR/T”. The Office is unaware of robots that make promises.

d. Page 1, line 24, “3” should be changed to “three”.

e. Page 2, line 14, the “sentence” that starts here is a fragment, not a sentence.

f. The following reference characters appear in the description but none ever references a particular entity/element/parameter: x' , y' , z' , x_2 , y_2 , z_2 , x_1 , y_1 , z_1 , r , θ , and Φ .

i. Where are angles θ , and Φ measured? Between what lines is each measured?

ii. What does reference character r , x' , y' , z' , x_2 , y_2 , z_2 , x_1 , y_1 , or z_1 indicate?

Claim Rejections - 35 U.S.C. § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-6 are rejected under 35 U.S.C. 112, **first** paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, **had possession** of the claimed invention. Each of claims 1 & 4, lines 9-11 recites that the first spherical bearing/support P_1 “is capable of changing positions relative to [the second bearing P_2] along said rod [R]”. There does not appear to be a written description of this limitation in the application as filed.

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10. Claims 1-6 are rejected under 35 U.S.C. 112, **first** paragraph, as containing subject matter which was not described in the specification in such a way as to **enable** one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

a. Claims 1 & 4, lines 8 & 9 recite that the second spherical bearing/support P_2 is “attached to said rod [R]”. However, to the contrary, at page 4, line last through page 5, line 2, the specification expressly describes the rod R as not being fixed to the second spherical bearing/support P_2 .

b. Each of claims 1 & 4, lines 9-11 recites that the first spherical bearing/support P_1 “is capable of changing positions relative to [the second bearing P_2] along said rod [R]” and then each recites in lines 12-14 that the motion of the first spherical bearing/support P_1 along the axis of rod R “is constrained”. The recitations are contradictory. The specification does not teach how to make the first spherical bearing/support P_1 so that it is both movable along the axis of the rod (as recited in lines 9-11) and constrained along the axis of the rod (as recited in lines 12-14).

11. Claims 1-6 are rejected under 35 U.S.C. 112, **second** paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Each of claims 1 & 4, lines 9-11 recites that the first spherical bearing/support P_1 “is capable of changing positions relative to [the second bearing P_2] along said rod [R]” and then each recites in lines 12-14 that the motion of the first spherical bearing/support P_1 along the axis

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of rod R “is constrained”. The recitations are contradictory. How can the first spherical bearing/support P₁ be both able to move along the axis of the rod (as recited in lines 9-11) and be constrained from moving along the axis of the rod (as recited in lines 12-14)?

Claim Rejections - 35 U.S.C. § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

13. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi et al, US 5,853,328. Fig. 8 shows a link mechanism which is part of a robot arm comprising: an axial rod A; a first spherical bearing D; and a second spherical bearing B. Each of the bearings D & B is attached to the rod A. The two bearings D & B are capable of changing positions relative to each other. The motion of the first bearing D relative to the axial rod A along the axis is constrained (see “fixed” in col. 1, line 21), but the first bearing D can move relative to the second bearing B because the first bearing is housed in a wheel E which imparts movement to the first bearing D relative to the second bearing B (i.e. when the wheel E travels over a bump or the tire of wheel E deflates or inflates). The second bearing B can travel along the axial rod A (see “slide-type” in col. 1, line 20) relative to the first bearing D. The position of the second bearing B and

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the direction of an arm C are defined by a coordinate values of the first spherical bearing D and the position of the second spherical bearing B relative to the first bearing D.

14. Claims 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Parker, US 2,124,006. Figs. 1 & 2 show a link mechanism comprising: an axial rod 24 and two supports 20, 21 & 27, the two supports being capable of changing positions. The motion of the first support 20, 21 relative to the axial rod 24 along the axis is constrained, but the first support 20, 21 can move relative to the second support 27 because the first support is attached to a base 10 which imparts movement to the first support 20, 21 relative to the second bearing 27 (i.e. when the base 10 vibrates). The second support 27 can travel along the axial rod 24. The position of the second support 27 and the direction of an arm 64 are defined by a coordinate values of the first spherical support 20, 21 and the position of the second support 27 relative to the first support 20, 21. On page 2, col. 2, lines 15+ and in Fig. 1, the link mechanism is disclosed as part of an end effector.

15. Claims 4-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hendrickson, US 1,149,762. Figs. 1-3 show a link mechanism which is part of a robot arm comprising: an axial rod 7 and two supports 6 & 9, the two supports being capable of changing positions. The motion of the first support 6 relative to the axial rod 7 along the axis is constrained, but the first support 6 can move relative to the second support 9 because the first support 6 is attached to a drum D which imparts movement to the first support 6 relative to the second bearing 9 whenever the drum

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D is moved. The second support 9 can travel along the axial rod 7 (see “slidably engaged” on page 1, line 83). The position of the second support 9 and the direction of an arm 14 are defined by a coordinate values of the first spherical support 6 and the position of the second support 9 relative to the first support 6.

16. Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Pritschow et al, US 5,916,328. Fig. 1 shows a link mechanism K comprising: an axial rod VE and two spherical bearings P & P', the two bearings being capable of changing positions. The motion of the bearing P relative to the axial rod VE along the axis is constrained and the other bearing P' can travel along the axial rod VE. In col. 5, lines 54-56 the link mechanism K is disclosed as part of an end effector.

17. Claims 1-6 are rejected under 35 U.S.C. 102(a) as being anticipated by Chinzei et al, “MR Compatible Surgical Assist Robot”. Fig. 2 on page 4 shows a link mechanism comprising all the limitations of the claims.

Response to Arguments

18. Applicant's arguments filed Jan 13, 2003 have been fully considered but they are not persuasive.

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a. Applicant argues that Kobayashi does not show two spherical bearings comprising all the limitations of the claims. However, as noted in the rejection above, Kobayashi shows two spherical bearings D & B that do comprise all the limitations of the claims.

b. Applicant argues that link mechanism of Parker is not intended to travel for establishing position and direction. However, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the link mechanism of Parker is capable of performing the intended use, it meets the claims. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

c. Applicant argues that Pritschow fails to show the claimed invention because in Pritschow “there is a teaching that the position of one of the bearings relates to the position of the other of the bearings”. However, such a teaching is in the instant application as well (see for example instant claims 2 and 5) and so the alleged teaching in Pritschow does not overcome the claim rejection.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Roy et al shows a link mechanism.

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20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Binda whose telephone number is (703) 305-2869. The examiner can normally be reached Tuesday through Friday from 9:30 am to 7:00 pm. The examiner can also be reached on alternate Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne, can be reached on (703) 308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9326 (before final), (703) 872-9327 (after final) and (703) 872-9325 (customer service).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2168.


GREGORY J. BINDA
PRIMARY EXAMINER